REMARKS

Reconsideration of the above-identified patent application, as amended herein, is respectfully requested. Claims 5-8 are pending in the application. Of these, only claim 5 is independent.

In the Office Action dated October 6, 2003, the Examiner objected to claim 5 because of a misspelling of the word "sheets" on line 3 thereof. By means of the present Amendment, this misspelling has been corrected. Accordingly, withdrawal of the objection is respectfully requested.

In the Office Action dated October 6, 2003, the Examiner rejected claims 5 and 8 under 35 U.S.C. 103(a) as being unpatentable over JP '949 in view of US '549 and JP '223. The Examiner also rejected claim 6 under 35 U.S.C. 103(a) as being unpatentable over JP '949 in view of US '549 and JP '223 as applied above, and further in view of US '107.

The Examiner also objected to claim 7 as being dependent upon a rejected base claim, but indicated that this claim would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants gratefully acknowledge the Examiner's indication that this application contains allowable subject matter. However, for the reasons set forth below, as well as for other reasons, it is believed that all of the claims in the application are now in allowable condition.

In particular, with regard to claims 5 and 8, the Examiner stated that JP '949 discloses a sheet metal panel for a roof covering comprising first and second sheets, an

intermediate layer made from a thermal insulating material disposed between the first and second cover sheets, and a photovoltaic element attached to the second cover sheet with fastening means. The Examiner admitted that JP '949 fails to disclose that the fastening means is a cold-bonding adhesive, but asserted that US '549 discloses a solar cell roof panel comprising a solar cell directly attached to the roof panel with double-sided adhesive tape. The Examiner asserted that in view of US '549, it would have been obvious for one of ordinary skill in the art at the time the invention was made to use double-sided adhesive tape (i.e., a cold bonding adhesive) to attach the solar panel of JP '949 to the roof panel for facilitating installation of the solar panel, as JP '949 is concerned with shortening the installation time, citing the English abstract of JP '949.

The Examiner also admitted that JP '949 fails to disclose an electrical cable connected to the solar cell and extending through a sealed bore in the sheet metal roof panel. However, the Examiner asserted that JP '223 teaches a solar panel whose rails are provided with holes for the electrical wiring, and the holes are water sealed by rubber packings. Therefore, the Examiner asserted that it would have been obvious to one of ordinary skill in the art at the time the invention was made to direct the wiring of the solar panel of JP '949 through sealed holes in the roof panel for protection of the wiring and efficiency of the installation, as JP '949 is concerned with both providing a water tight solar roof panel assembly and enabling an efficient installation, again citing the English abstract of JP '949.

With regard to claim 6, the Examiner admitted that JP '949 fails to specify that the plane photovoltaic element comprises amorphous silicon solar cells, but stated that US '107 discloses a solar roof module that uses an amorphous silicon solar cell for the benefit of heat transfer efficiency. Therefore, the Examiner asserted that it would have been obvious for one of ordinary skill in the art at the time the invention was made to use a solar cell panel with amorphous silicon cells for improving the efficiency of the solar cell.

By means of the present Amendment, claim 5 has been amended to recite that the photovoltaic element is joined along its entire surface to the second cover sheet by a cold-bonding adhesive so that heat is transferred from the photovoltaic element to the second cover sheet. These newly added limitations are not disclosed nor suggested by JP '949, the primary reference relied upon by the Examiner in rejecting the claims. The solar panel of JP '949 is installed on a recess 6 formed on the upper surface of the upper metal cover. See the English abstract of JP '949. Thus, the solar panel is not "joined along its entire surface" to the cover sheet as now required by claim 5. Also, heat transfer from the solar panel 7 to the metal cover sheet is not possible in JP '949 because of the hollow space 6 behind the solar panel 7. According to the invention of claim 5, however, the photovoltaic element is in the form of a flexible laminate which is not self supporting but is joined along its entire surface to the second cover sheet by a cold bonding adhesive. This not only permits, but in fact promotes, the transfer of heat from the photovoltaic element to the second cover sheet. The features newly added to claim 5 are not disclosed

nor suggested by JP '949 or any of the other prior art of record. Accordingly, a rejection under 35 U.S.C. 103(a) which relies on JP '949 as the primary teaching reference is improper.

There are additional reasons why claim 5 is patentable over the prior art of record. Specifically, the Examiner asserted that it would have been obvious to a person of ordinary skill in the art to use the double-sided adhesive tape of US '549 to attach the solar panel of JP '949 to the roof panel for facilitating installation. However, US '549 cites several reasons why one should not use a double-sided adhesive tape to attach solar panels to a substrate. Thus, at col. 2, lines 27-37, of US '549, it is stated that the use of double-sided adhesive tape negatively affects the long-term reliability of the installation. Col. 2, lines 43-47, of US '549, states that the use of double-sided adhesive tape also requires the use of relatively expensive weather proofed connectors, and that the connectors must be fixed to the adhesive tape or the like so that the connector units do not sway in the wind. In addition, col. 2, lines 48-49, of US '549, states that some users are not pleased with the appearance when the connector units are exposed. On the whole, the thrust of col. 2 of US '549 is that there are serious deficiencies in an installation which employs double-sided adhesive tape to affix solar panels to the underlying metal cover and therefore a method of installing solar cells on a roof which doesn't suffer from the deficiencies of double-sided adhesive tape is desired. In short, US '549 teaches away from the use of double-sided adhesive tape as a means for attaching a solar cell to a metal sheet cover.

Therefore, it is improper for the Examiner to combine JP '949 with US '549 in order to arrive at applicants' claimed invention.

In addition, it is believed that it would not have been obvious to a person of ordinary skill in the art to combine JP '949 with JP '223 to arrive at applicants' claimed invention except with the benefit of hindsight. While JP '223 teaches a solar panel with rails which are provided with holes for electrical wiring, these rails are expressly described as being "fitting rails supportingly fixing the solar battery panel." See the English abstract of JP '223. These fitting rails, in fact, constitute parts of a frame structure forming an installation base to stabilize the solar panels and to facilitate their mounting, e.g., on a roof. It is apparent that the problems associated with passing an electrical cable through a thermally insulated sheet metal panel, as in the presently claimed invention, are very different from those associated with simply passing an electrical cable connecting cable through the wall of the groove shown in JP '223. This is because the groove, being a part of the frame structure, will always be exposed to the outer environment. JP '223 suggests two alternative solutions of which only the first one completely encloses the cables, and that only against light and water. Nevertheless, both alternatives suggested by JP '223 are considered appropriate for solving the problem of preventing the coating and connection part of the lead wire from breaking down and then improving efficiency of installation or maintenance. Thus, the scope of JP '223 falls short of that of the present invention. Consequently, the issues of fire protection and of thermal insulation, as discussed in the present specification on page 3, first paragraph,

and which are especially relevant when different climatic areas have to be effectively separated by thermally insulated sheet panels, are not addressed at all by JP '223.

For these reasons, it would not be appropriate to combine the teachings of JP '223 with the disclosure of JP '949 to arrive at applicants' claimed invention. Since JP '949 also fails to teach or suggest providing a sealed bores passing through the insulating sheet panels for the electric connecting cable, it is submitted that the present invention is patentable over the prior art of record.

For these reasons, it is believed that claim 5 is patentable over the prior art of record. As claims 6-8 depend from claim 5, and therefore incorporate all of its limitations by reference, it is believed that they too are patentable over the prior art of record for similar reasons.

In view of the foregoing, it is believed that the present application is now in condition for allowance and a favorable action on the merits is respectfully requested.

Respectfully submitted,

PROSKAUER ROSE LLP
Attorney for Applicant(s)

By _____
Charles Guttman
Reg. No. 29,161

Date: January 8, 2004

PROSKAUER ROSE LLP
1585 Broadway
New York, NY 10036-8299
Telephone: (212) 969-3000